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THE EMPLOYEE IMPROVEMENT PROCESS TROUGH TRAINING IN LIGHT OF THE DEVELOPMENT OF A WORK SAFETY CULTURE

Summary. The article presents a theoretical framing of the issue of trainings as an element of employee improvement in an organisation and then refers this subject to the notion of safety culture, especially work safety culture. Improvement of the human capital in the organisation contributes to the formation of proper attitudes of the employees and employers towards the issues of occupational health and safety. The study also presents the results of research regarding the evaluation of a safety culture in enterprises in the industrial sector. The results indicate a strict relation between training activities and the increase of a safety culture at work, and thus, the development of the enterprise.

Keywords: improvement, trainings, culture

PROCES DOSKONALENIA PRACOWNIKÓW POPRZEZ SZKOLENIA W ASPEKCIE KSZTAŁTOWANIA KULTURY BEZPIECZEŃSTWA PRACY

Streszczenie. W artykule przedstawiono teoretyczne ujęcie zagadnienia szkoleń jako elementu doskonalenia pracowników w organizacji, a następnie odniesiono ten temat do pojęcia kultury bezpieczeństwa, a szczególnie kultury bezpieczeństwa pracy. Doskonalenie kapitału ludzkiego w organizacji przyczynia się do kształtowania prawidłowych postaw pracowników i pracodawców wobec zagadnień bezpieczeństwa i higieny pracy. W opracowaniu zaprezentowano również wyniki badań nad oceną kultury bezpieczeństwa w przedsiębiorstwach branży przemysłowej. Wyniki wskazują na ścisły związek działalności szkoleniowej na podnoszenie kultury bezpieczeństwa pracy, a tym samym na rozwój przedsiębiorstwa.

Słowa kluczowe: doskonalenie, szkolenia, kultura

1. Training as one of the most important elements of the employee development process

In an economy based on knowledge, a properly developed employee improvement process is of great significance in the development of the enterprise and in the creation of its competitive advantage. Trainings are one of the most important elements of this undertaking. Training, driving the development of the personnel in the organisation, is strictly connected with an increase of competences of the employed persons and their ability to adjust to the continuously changing requirements at the work place[1]. Training can play a significant role in the increase of responsibility among employees[2].

The purpose of training is for the improvement of work effectiveness and maintenance of it through provided assistance in development of competences of the employees and for their adjustment to new organisational solutions and content of work. Training has a significant impact on the increase of motivation among employees and also for the newly hired ones it is a form of preparation for the performance of their new duties. Well prepared trainings guarantee the improvement of effectiveness and competitiveness of the enterprise on the market, as well as improving communication inside the company.

Training processes are not a purpose in themselves, but a means for the implementation of particular goals of the company and employee. Continuously changing requirements in qualifications impose new goals upon the employees. To meet these requirements, the employees must have an entire set of skills and proper competences to act in new situations independently and responsibly[3].

The success in teaching depends, first and foremost, on whether the members of the organisation have properly recognised their deficiencies in terms of knowledge and have considered the education as both necessary and beneficial for them. In connection with this fact, an important element is the preparation of an analysis of training needs in the company, the development of a training plan, properly conducting the training, and the implementation of its results in the enterprise.

The design of a training programme for a given enterprise requires a detailed analysis of needs in this scope. Undoubtedly, this process is not easy as it is conditioned by the company's specificity which often makes it difficult to use a universal training formula. The first stage of the training process is the analysis of easily accessible sources of information. The level of complexity and time allocated depends on the resources of the company.

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[1] Cf. Schippmann J.S. at al.: The practice of competence modelling. "Personnel Psychology", No. 3, 2000.
[2] McKenna E., Beech N.: Zarządzanie zasobami ludzkimi. Gebethner & S-ka, Warsaw 1999, p. 200.
[3] Ibidem.

The systems and data already existing in a an enterprise greatly facilitates the analysis, such as, e.g.[4]:

- results of periodic evaluation of employees,
- required qualifications for the given work position,
- corporate operating plans, mission, strategy and organisational structure,
- documentation regarding absences, diseases, and accidents of the personnel,
- changes that can occur in the near future or that have already occurred.

Such information sources allow to determine the training needs in the given enterprise. The proper interpretation of available documents allows to create forms and questionnaires and to determine the group represented the others (it is not clear what '*the group represented the others' is – is this a control group?*) in the given study. If the enterprise does not have such documents or if they are illegible or not revised, it is necessary to conduct studies of the training needs from a base starting point. Methods used most frequently in such situations are presented below:

- organisation diagnosis – the analysis covers efficiency and effectiveness in the accomplishment of goals in a manner allowing to determine deviation from patterns,
- work position analysis – determines educational needs resulting from the task difficulty level, etc.
- analysis of information obtained in the course of employee evaluation – measurement of work of each employee in relation to effectiveness standards attributed to the given work position,
- survey among the employees – the respondents describe the existing problems and methods of their solution[5].

Upon identification of the training needs in a given enterprise, the importance of needs as well as feasibility of their satisfaction are put into hierarchy, taking into account the budget of the company as well as other dependencies between them. The analysis of the training needs must be carried out systematically, allowing for easier identification of the difference between the already existing situation and the situation that should exist within the scope of knowledge and skills of the personnel.

Based on clearly set goals that the company wants to achieve, we select the proper form of training. It is essential that it must provide the opportunity of active participation in practical classes and must be in a form stimulating the participants of the training. The last stage of the training cycle and development of employees' competences is the evaluation of the training effectiveness. This is determined on the basis of the evaluation carried out by the trainees, the instructor conducting the training, as well as the immediate superiors of the trainees. There

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[4] Dubel-Borycka M.: Zanim rozpoczną się szkolenia, 2014, www.kadry.info.pl/tekst/4361.htm, May 2016.
[5] Ibidem.

is a series of models allowing for the evaluation of the progress of the training process. The author of one of the most popular models was Donald Kirkpatrick who created a comprehensive training evaluation comprising four levels. These include: a reaction level, a knowledge level, a behaviour level, and an organisation level[6].

The first of the specified levels consists of the evaluation of the training by the trainees. This regards the evaluation of the persons conducting the meetings, quality of didactic materials, usefulness of classes, and the essence-related (what is an essence-related level? Try to use another word) level of the instructors. Assessment of the training's usefulness and level of its performance is also important. Such information can be obtained by means of observation of the participants in training as well as by conducted surveys and interviews. It is difficult to assess the usefulness of the gained knowledge immediately after the completion of the training. Therefore, it is essential that at this level it is the training that is evaluated and not the trainee[7].

At the knowledge level – the impact of the training on the employee is assessed. Here, it is essential to assess if and to what extent the user gained practical skills and necessary knowledge in the course of the training. At the behavioural level we obtain the answer to the question of whether the employee can apply the newly gained knowledge and if anything changed within the scope of their duties, powers or responsibilities. An organisation aiming at changes in behaviours requires a proper conducive climate. A significant role is played by the very motivation for changes, through the promotion system as well as recognition received from colleagues and superiors. In order to obtain an assessment of the above levels, employees are observed, compared with a control group, and are interviewed.

The last level regards the evaluation of the training from the point of view of the client, that is – if the training contributed to the development of the enterprise according to its strategy. The best known evaluation method for this level is the analysis of the critical point and analysis of benefits and costs. Costs include costs of materials, rental of rooms for the trainings, costs related to employees being outside of the workplace as well as costs incurred for the education itself related to, inter alia, the company conducting the course or remuneration for the instructor. Benefits resulting from conducted trainings include a decrease of the accident rate, an increase of the quality of products and services and, first and foremost, the development of employees' competences[8].

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[6] Koźmiński A.K.: Zarządzanie. Teoria i praktyka. PWN , Warsaw 2013, p. 340-355.
[7] Ibidem.
[8] Ibidem

2. Work safety culture

An important factor that has an impact on the improvement and reinforcement of the innovativeness and creativity of employees in organisations is the creation of proper conditions – an organisational culture promoting an attitude of openness, and an innovative atmosphere motivating and conducive to taking up new challenges[9]. The process of supplementation of knowledge necessary to improve competences and introduce innovative behaviours required at the given position are trainings of the employees. They have a significant impact on the effects of work and are conducive to the stimulation of entrepreneurship and development of employees' personality[10].

Through supplementation of knowledge of employees, trainings contribute to the development of the organisational culture and, thus, develop the culture of safe behaviours.

A properly developed organisational culture determines the nature of the company on the market. It integrates the employees with the company, penetrates, in the form of opinion, to the recipients, customers, and collaborators. It is a good for those who apply for employment, a motivating factor (also in terms of observance of OHS principles), which obliges one to behave in a certain manner, including the maintenance of safety and promoting the opinion about the company[11].

Examining the organisational culture, we can determine the way of thinking of its participants as well as the principles and standards they follow in their behaviours.

In organisations aiming at success, the values of the company made clear for everybody are decisive in terms of market competitiveness of the enterprise relating to products and interpersonal relations. Such values, expressed in specific culture-oriented communication to the client and employees, are of great importance.

The notion of a safety culture is strictly related to the more general notion of safety culture.

Safety culture is most frequently conceptualised as a set of psychological, social and organisational factors activating or maintaining activities protecting life or health, both at work as well as outside it[12]. Safety culture lays down the principles of conduct and values shared by the members of the given group as well as determines the relation of people towards risk and

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[9] Machnik-Słomka J., Ocieczek W.: Wpływ osobowości twórczych na innowacyjność przedsiębiorstw, [in:] Jabłoński A.: Wybrane modele prowadzenia biznesu. Wyższa Szkoła Biznesu, Dąbrowa Górnicza 2011, p. 181.

[10] Penc J.: Nowoczesne kierowanie ludźmi. Wywieranie wpływu i współdziałanie w organizacji. Difin, Warsaw 2007, p. 177.

[11] Bańka W.: Zarządzanie personelem w przedsiębiorstwie. Adam Marszałek, Toruń 2001, p. 162-163.

[12] Studenski R.: Kultura bezpieczeństwa pracy w przedsiębiorstwie. „Bezpieczeństwo pracy", nr 9, 2000, p. 1.

safety[13]. In general, the safety culture is referred to the society, enterprise and individual[14]. Table 1 presents the scopes of the particular elements of the safety culture.

Table 1

Safety culture elements

Safety culture elements	Description
Safety culture of the society	Determines the attitude expressed by the given society towards risk, value attributed to life and health, accepted standards of conduct in case of a hazardous situation as well as manner of assessment of risk-takers.
Safety culture of the enterprise	Determines state of awareness typical for the majority of the staff in relation to hazards, functioning official and unofficial standards of conduct in a hazardous situation as well as technical and organisational accomplishments that have an impact on inclusion of occupational health and safety in the enterprise management, task organisation, supervision and evaluation of employees as well as investigation of causes of accidents and catastrophes.
Safety culture of the individual	Expresses the individual convictions and values regarding one's own life and health as well as level of necessity to protect them. Reflects individual attitudes towards risk, perceptible autotelism degree of risky behaviours, acceptable behaviour patterns in a risk situation as well as anticipated assessments of these behaviours expressed by the social surrounding.

Source: Studenski R.: Kultura bezpieczeństwa pracy w przedsiębiorstwie. „Bezpieczeństwo Pracy", nr 9, 2000.

Speaking of the safety culture, it must be stated that every enterprise has its specific work safety culture.

When forming the work safety culture, it is necessary to pay special attention to three elements:

- physical environment of work (tools, machines, work station organisation),
- behaviours of the employees (observance of OHS regulations, providing information and cooperation, demonstrating care over safety exceeding their obligations),
- internal traits of the employees (knowledge, skills, motivation)[15].

Building of proper work safety culture should take place through engagement of all employees in proper activities.

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[13] Żurakowski Z.: Kultura bezpieczeństwa w przedsiębiorstwie. Zeszyty Naukowe, s. Organizacja i Zarządzanie, z. 77. Politechnika Śląska, Gliwice 2015, p. 323-330.
[14] Studenski R.: Kultura bezpieczeństwa pracy w przedsiębiorstwie. „Bezpieczeństwo Pracy", nr 9, 2000, p. 1.
[15] Cf. Żurakowski Z.: op.cit., p. 323-330.

These types of actions include, inter alia:

- convincing employees that work compliant with OHS and health protection are advantageous both for the enterprise and themselves,
- conviction that there are actual possibilities of conduct compliant with the governing laws and improvement of work conditions on the particular positions,
- engagement and care of the management in creation of safe work conditions as well as safe conduct of the subordinates,
- participation of employees, for example in development of internal standards and documents within the scope of OHS,
- report and analysis of accidents and potentially accidental incidents,
- application of procedures of observation of measurements of compliance of conduct with the governing safety standards,
- motivation and reinforcement of safe behaviours[16],
- diagnosis and evaluation of the existing safety culture for the purpose of improvement of areas having a negative impact on its functioning.

Proper diagnosis of work safety culture can be performed in a written or direct form. Indirect diagnostics of the work safety culture is based on analysis of its results. Here, the measurement is the number of accidents or occupational diseases registered in a specific period of time. Direct diagnosis of safety culture is an evaluation of its components, i.e. the commonly governing and known principles of conduct, values of health and life, binding OHS regulations. It requires development of tests and surveys covering proper population of the staff[17], it is an evaluation by means of the so-called safety climate at work.

Therefore, the evaluation of the safety culture must be a comprehensive form of evaluation, encompassing the engagement of the organisation and employees in the formation of the work environment, an assessment of the parameters of the work environment itself and technical means at the disposal of the employees, safe work procedures and applied technological processes, and, first and foremost, an evaluation of the so-called safety atmosphere consisting of the perception of the environment and engagement in pro-safe activities of the employees themselves. It is their subjective assessment, resulting from exact and complete knowledge of the work environment that should be an indicator for the organisation in the areas which, according to the employees, stand out and which require improvement[18].

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[16] Cf.: www.specjalistadsbhp.pl, May 2016; Lewandowski J.: Zarządzanie bezpieczeństwem pracy in the enterprise. Politechnika Łódzka, Łódź 2000; Studenski R.: Technika, człowiek czy skłonność do ryzyka. „Atest", nr 11, 2003; Podgórski D., Pawłowska Z.: Podstawy systemowego zarządzania bezpieczeństwem i higieną pracy. CIOP-PIB, Warsaw 2004.

[17] Cf. Griffin R.: Podstawy zarządzania organizacją. PWN, Warsaw 2004.

[18] Nowacki K., Łakomy K., Lis T.: Staż pracy a kultura bezpieczeństwa. Innowacje w zarządzaniu i inżynierii produkcji. Knosala R. (ed.), Oficyna Wydawnicza Polskiego Zarządzania Produkcją, Opole 2016, p. 450.

3. Safety culture study

3.1. Methodology of work safety culture development studies

A questionnaire consisting of 63 questions has been developed for the purpose of a safety culture evaluation. The questions referred to all spheres of operation of industrial-sector enterprises and covered 7 areas:

- area 1 – work environment,
- area 2 – work organisation,
- area 3 – knowledge with the scope of safety,
- area 4 – machine safety,
- area 5 – pro-safe behaviours,
- area 6 – commitment and motivation for safety behaviours,
- area 7 – safety communication.

Replies to the questions were given in the five-level Likert scale, with possible answers being: "definitely yes", "rather yes", "yes", "rather no", "definitely no". The reply "does not apply" was also possible. Analysing the results, points on a scale from 0 to 4 were awarded for each reply. The value for the arithmetic mean was determined for every question and area and relates to the maximum number of obtainable points. The questions and areas where 75% of points were obtained were given a positive score, whereas in case of 50% and less points, the score was negative. The obtained results allowed to determine a measure of the safety culture as portrayed by the area of the radar chart in relation to the maximum surface area given if full points were awarded. This indicator, ranging from 0 to 1, grades the evaluation that is given of the work safety culture. Participation in trainings improving qualifications of employees was adopted as a criterion for the comparative analysis. These trainings were voluntary and did not consider occupational health and safety.

3.2. Trainings and work safety culture observance

Analysis of data from the surveys conducted in two industrial enterprises was performed. In enterprise A the research group had 207 persons, whereas in company B the study covered 134 employees. The evaluation of the observance of the safety culture by the employees is presented in fig. 3. The higher the indicator, the higher the score determined by the employees.
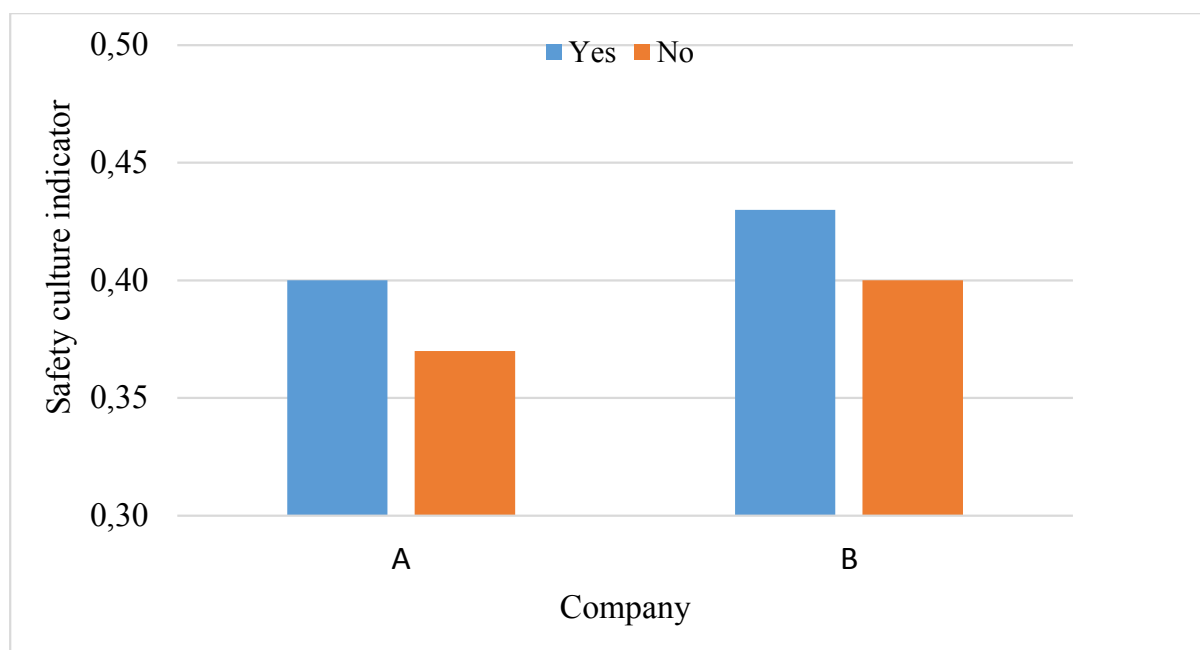
Fig. 1. Difference in perception of work safety culture by employees participating in the trainings (Yes)
    and not participating in them (No)
Rys. 1. Różnica w postrzeganiu kultury bezpieczeństwa pracy przez pracowników uczestniczących
    w szkoleniach (Tak), i nieuczestniczących w nich (Nie)
Source: Own study.

On the basis of the analysis, one can state that participation in the trainings has a positive effect on the evaluation of the safety culture. Additional forms of education improve, first and foremost, the level of awareness of the employees. The employees gain additional new competences in the course of the training. Participation in specialised industry meetings, languages courses, or the so-called soft trainings might prove to be particularly significant in almost all work positions. Educated employees have knowledge relating to safety in their work environment, can properly organise work, notice irregularities in the work environment and react to them as well as are characterised with a high level of motivation and engagement in the promotion of the safe work concept. Eventually, the self-development of employees influences the care that they give to creating a high level of culture of their enterprise, not only within the work safety area, but also within the entire organisation.

Opposite conclusions can be drawn in the case of persons who do not use additional trainings offered by the employer. A weaker safety culture can result from a lack of ability to notice the priority of one's own safety and that of colleagues' safety. The reasons for a lack of participation of some employees in training are unclear. However, research shows that this segment of employees' is unwilling to extend their knowledge, and their approval towards positive changes in the enterprise is negligible.
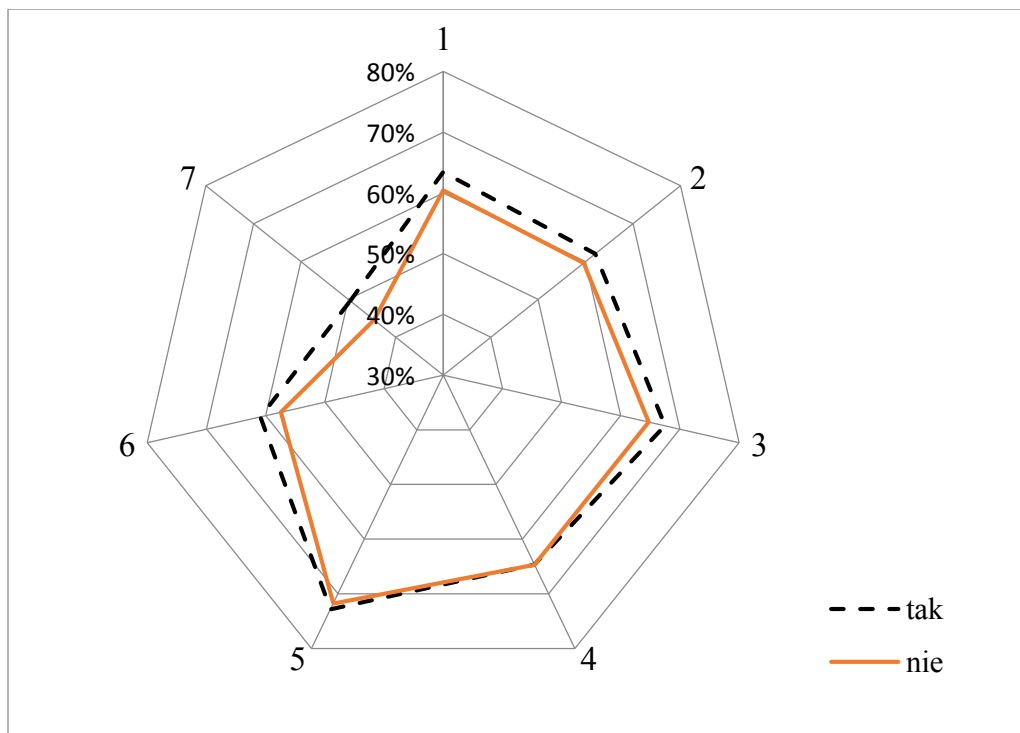
Fig. 2. Evaluation of safety culture by the employees from enterprise A in the analysed areas (division in terms of participation in non-mandatory trainings)

Rys. 2. Ocena kultury bezpieczeństwa przez pracowników z przedsiębiorstwa A w analizowanych obszarach (podział pod względem udziału w nieobowiązkowych szkoleniach)

Source: Own study.

Analysing the safety culture into research areas, it can be noted that persons participating in trainings and improving their qualifications are characterised with higher work culture. This situation occurs both in case of enterprise A and company B.

Trained employees of enterprise A (fig. 3) evaluated the safety culture more advantageously in six areas. Additional trainings have no impact on the perception of the area connected with machine safety since both groups evaluated this section as 65%. The highest, five per cent, difference can be seen in the area of work safety communication. This indicates higher social competences of employees who aim at gaining knowledge. These persons are also characterised with a high awareness of the role of communication in their work environment. In other research points, the differences in evaluation ranged from 1% to 4%, always for the benefit of the group participating in additional trainings. Persons participating in the trainings are definitely characterised with an understanding for the need of employment of personal protection equipment, knowledge of procedures related to accidents or fire, or care over observance of OHS regulations by the entire staff team. The results of the measured work environment factors gives ground in proving the professionalism and legitimacy of the trainings.

A similar situation takes place with the evaluation of the work safety culture by enterprise B employees (fig. 4). Once again, work safety culture was evaluated as better by employees benefiting from educational services.
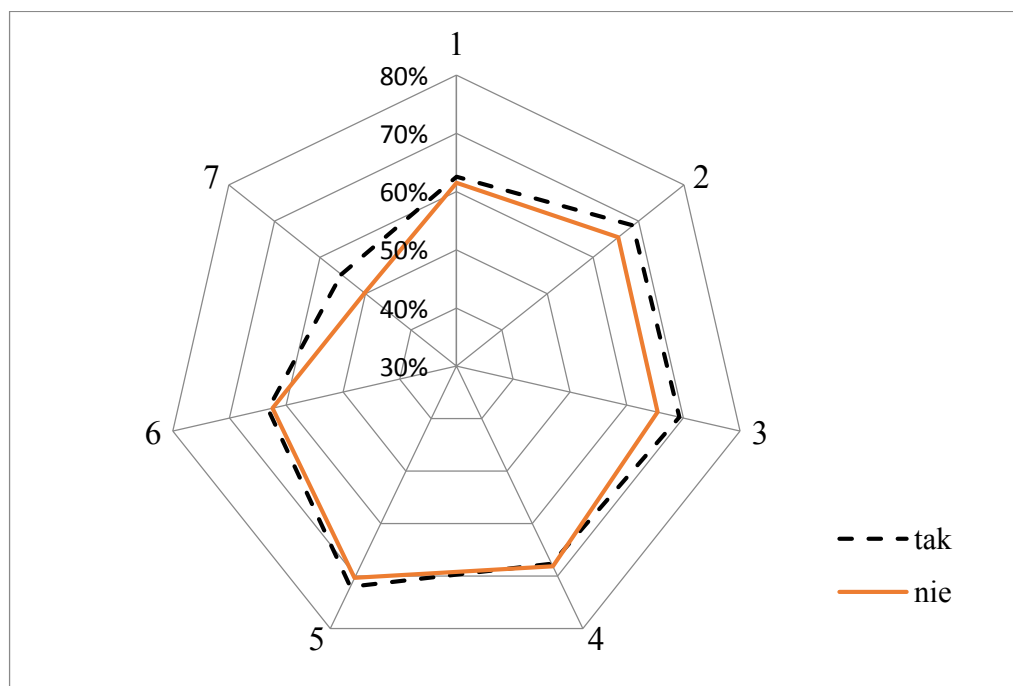

Fig. 3. Evaluation of safety culture by the employees from enterprise B in the analysed areas (division in terms of participation in non-mandatory trainings)
Rys. 3. Ocena kultury bezpieczeństwa przez pracowników z przedsiębiorstwa B w analizowanych obszarach (podział pod względem udziału w nieobowiązkowych szkoleniach)
Source: own study.

The obtained results show a similar perception of the work culture by all surveyed employees in the areas of work enviroment (1), machine safety (4), pro-safe behaviours (5) as well as engagement and motivation for safe behaviours (6). A difference can be seen in the second area regarding work organisation. Persons who completed additional trainings, trying to follow safety instructions, recognise the assistance and advice they are provided with from the OHS services, have knowledge of the location of the first aid kit and fire extinguisher and, first and foremost, are aware of the possibility they have in participating in the determination of safety principles in their work. This results from the openness to changes in the immediate environment as well as the possibility to use the new abilities gained during various trainings in practice.

4. Conclusions

The obtained results show that any didactic activity organised by the enterprises clearly encourages the employees to take responsibility for their own health and life at work. Thus, it is necessary to equalise the opportunities of additional education among all employees. For the employers, this may mean the necessity to seek new forms of motivation for employees, or the implementation of new work regulations. However, all actions contributing to improving the attendance of participants in trainings will be a guarantee of a higher work safety culture.

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16. www.specjalistadsbhp.pl, May 2016.